

CLAIMS:

1. A method of treating a cathode of an OLED device having a substrate and which has a spaced anode and organic layers between the anode and cathode, comprising:
 - 5 a) evacuating a chamber so that it has a pressure no greater than 10^{-6} Torr;
 - b) heating the OLED substrate in the chamber to a temperature less than 100°C; and
 - 10 c) delivering gas, including ozone, to the evacuated chamber which includes the heated OLED substrate at a sufficient rate so that the pressure is less than 1 atmosphere, so that the life of the OLED substrate is increased and the operating voltage is decreased.
2. A method of forming an OLED device, comprising:
 - 15 a) providing an anode over the substrate;
 - b) providing a series of organic layers over the substrate; and
 - c) providing a cathode having at least two sublayers by forming a first cathode sublayer on the organic layers and treating the first cathode sublayer in accordance with the method according to claim 1, and forming a
 - 20 second cathode sublayer on the first cathode sublayer.
3. The method according to claim 1 wherein the ozone gas concentration is between the range of 10-20% by volume of the incoming gas and the substrate temperature is below the glass transition temperature of at least one of the deposited organic materials on the OLED device.
- 25 4. The method according to claim 2 wherein the ozone gas concentration is between the range of 10-20% by volume of the incoming gas and the substrate temperature is below the glass transition temperature of at least one of the deposited organic materials on the OLED device.

5. A method of forming an OLED device, comprising:

- a) providing a substrate and an anode over the substrate;
- b) providing a series of organic layers over the substrate;
- c) providing a cathode over the substrate;
- d) performing the method according to claim 1; and
- e) forming by an atomic layer deposition process an encapsulation layer using alternating gases, at least one of which has ozone.